

Strengthening
Australia's position
as a global hub for
mining innovation

MINING EQUIPMENT TECHNOLOGY SERVICES



2018 UPDATE

10 YEAR SECTOR
COMPETITIVENESS PLAN



Australian Government
Department of Industry,
Innovation and Science

Industry
Growth
Centres



2018 Addendum

Foreword

The conversation grows

The release of the Mining Equipment, Technology and Services (METS) ten year Sector Competitiveness Plan (SCP) in November 2016 started a much-needed conversation about the future of the Australian METS industry.

The industry-led plan outlined a shared vision for the METS sector to create new value and jobs. It described the current state of the METS sector, defined the challenges and opportunities the industry faced, and identified five areas where players throughout the METS ecosystem could act to achieve the sector's vision.

This addendum updates the SCP where there are new insights or progress in this newly-defined sector. It includes information about the composition and economic contribution of the METS sector, new analysis of the economic opportunity for the sector, and an update on action across the ecosystem in the SCP's five priority areas.

A key new insight is that the METS sector created \$86.2 billion in value for the economy in 2014-15, a larger contribution to the economy than retail or agriculture. Crucially, new research also shows that there is still enormous opportunity to unlock. New digital and other technology innovations, created by METS companies, could transform key aspects of mining, delivering a \$52 billion step change in productivity and generating significant new domestic and export income for the METS industry.

Australian METS companies are better-placed to realise these opportunities than competitors in other markets globally, thanks to Australia's bounty of natural resources, the sector's world-class capabilities and skills, and the leading global position of the Australian METS and mining industries. The galvanising impact of creating a vision for the sector via the

SCP and the establishment of the METS Ignited Industry Growth Centre is further accelerating Australia's advantage in realising these opportunities.

However, key challenges identified in the SCP have also materialised in the last 18 months. These include ongoing barriers to collaboration between the mining, METS and research sectors, which are limiting innovation, and the rapid growth of the METS sector in emerging markets that is creating a rising tide of new competition.

We must continue to build on the momentum generated by the SCP to keep the Australian METS sector at the forefront of the world. This means increasing our pipeline of new products, services and technologies. It means growing the sector's ability to commercialise and sell these globally at scale. It means strengthening strategic relationships in the industry, with mining companies, with the broader METS ecosystem and with overseas partners. For METS Ignited, it means creating an aligned, efficient and agile industry ecosystem with a high degree of collaborative, global leadership in innovation that can capture a growing share of the global market.

We are proud of what METS Ignited has achieved in the last 18 months and look forward to building on this work over the coming years to grow the sector, and to create more jobs and opportunity for Australia.

Lyle Bruce

Chair

Ric Gros

CEO



Update to the METS Industry in Australia (Chapter 2)

The Australian METS industry has a global advantage

A series of economic studies undertaken since the SCP has underscored the critical and evolving role of the METS sector in the Australian economy. Australian industries often face the challenge of small domestic markets, limiting their ability to

achieve scale domestically and as exporters. METS companies buck this trend because the Australian mining industry is large and world-leading in its share of global resources and production for many key minerals (see Table 1). This relationship gives Australian METS companies a global comparative advantage because of the strength, size, diversity, maturity and ongoing growth of the Australian mining industry.

Table 1: Export performance of major Australian minerals, 2016-17

Mineral	Mineral ranking exports (#)	Amount exported (kt)	Value exports (\$m)
Iron ore	1	818,000	62,617
Thermal coal	2	202,000	18,902
Metallurgical coal	1	177,000	35,335
Bauxite	1	24,851	1,042
Alumina	1	18,230	6,655
Gold	2	0.31	18,013
Copper (ores and concentrates)	3	1,752	4,577

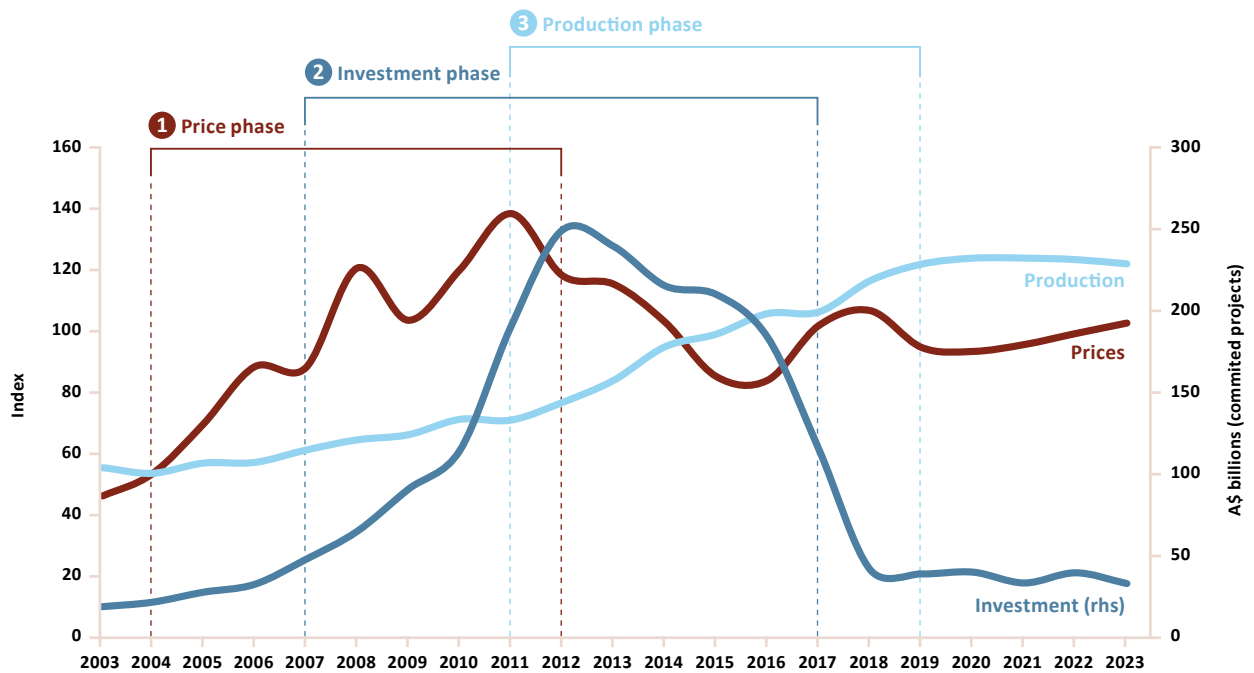
Source: Department of Industry, Innovation and Science (2018), *Resources and Mining Quarterly March 2018* and historical dataset; Geoscience Australia (2017), *Australia's Identified Mineral Wealth*

Australia has expanded its mining production across all major commodities, tripling output of iron ore and almost doubling production of all other major commodities.

Australian mining benefited from a prolonged mining boom from 2004 onwards, which has unfolded over three phases (see Exhibit 1). The boom was catalysed by a sharp rise in global prices for minerals. This in turn triggered a mining investment and construction boom in Australia as mining companies

sought to lift production to respond to higher global demand, and then a final phase marked by increased production.¹ As a result, Australia has expanded its mining production across all major commodities, tripling output of iron ore and almost doubling production of all other major commodities.

Exhibit 1: The Australian mining boom unfolded over 3 phases



Source: DIIS

The METS sector benefited from this expansion throughout the period. While the needs of the mining industry evolved over these phases, the diversity and capability of the METS sector allowed it to participate through all the value-added cycles of the mining sector from exploration, scoping and feasibility, design and construction, operation and rehabilitation. The prolonged long-term growth of METS is a reflection of the sector's ability to leverage large local demand and export its products and services to a global market.

This powerful combination has seen METS and Mining make a significant contribution to Australian exports: Australian energy and resources exports account for 40 per cent of total Australian exports and two-thirds of Australia's merchandise exports. National export earnings from mining and resources, excluding oil and gas, is forecast to reach \$192 billion in 2017-18. In the latest quarter alone, export earnings were \$17.4 billion for iron ore, \$4.4 billion for gold and \$2.4 billion for copper.²

1 Department of Industry, Innovation and Science, (2018) Resources and Energy Quarterly March 2018

2 Department of Industry, Innovation and Science, (2018) Resources and Energy Quarterly March 2018

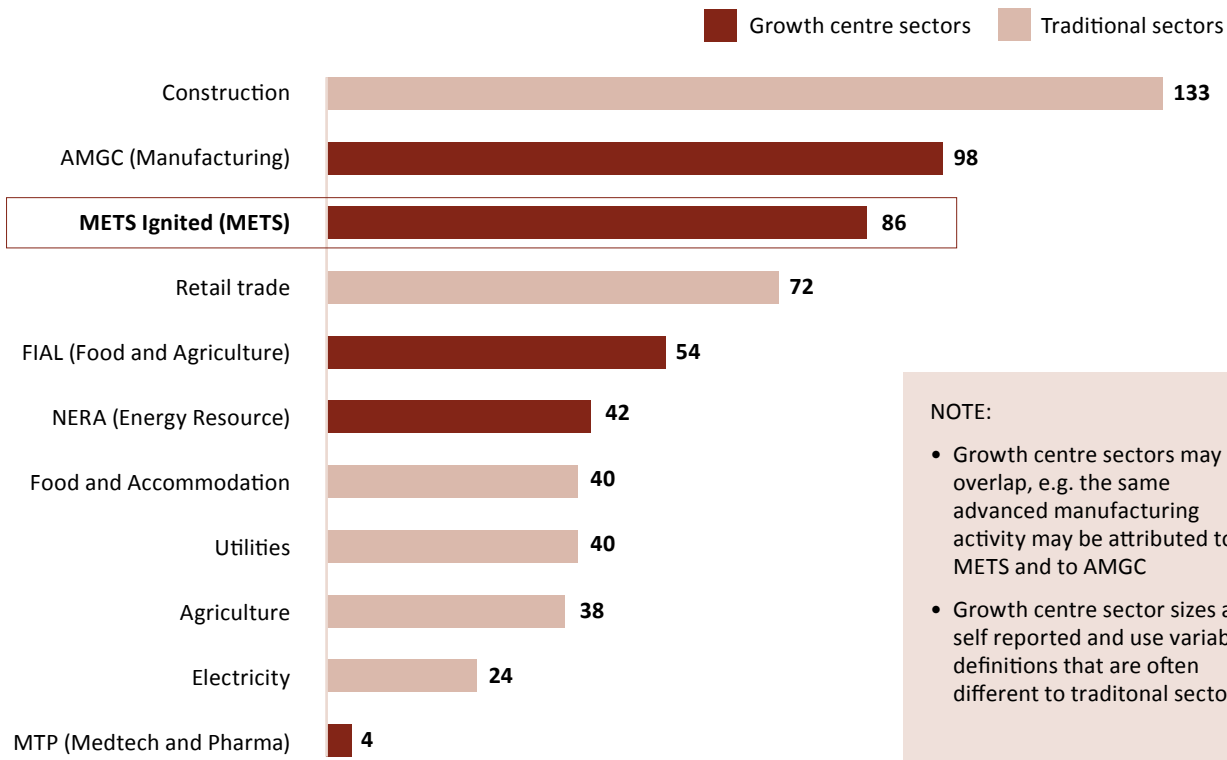
The METS sector is a large and integral part of the Australian economy

New research undertaken into the METS sector confirms it is a significant portion of the Australian economy. Independent economic analysis commissioned by METS Ignited estimates

that the METS sector had a gross value-added (GVA) of \$86.2 billion (see Exhibit 2). This is bigger than the retail trade (\$72 billion) and agriculture (\$38 billion) industries. METS is just behind manufacturing (\$98 billion), although there is a strong link between the two sectors, as \$16 billion of METS GVA is attributable to manufacturing activity.³ This is almost twice the GVA from the automotive sector attributable to manufacturing in 2014-15.

Exhibit 2: The METS sector is a significant contributor to the Australian economy

GVA of selected major Australian sectors, Gross Value Added, \$bn (2014-15)



Source: ABS; Lateral Economics; Austmine; MCA; Deloitte; AlphaBeta analysis

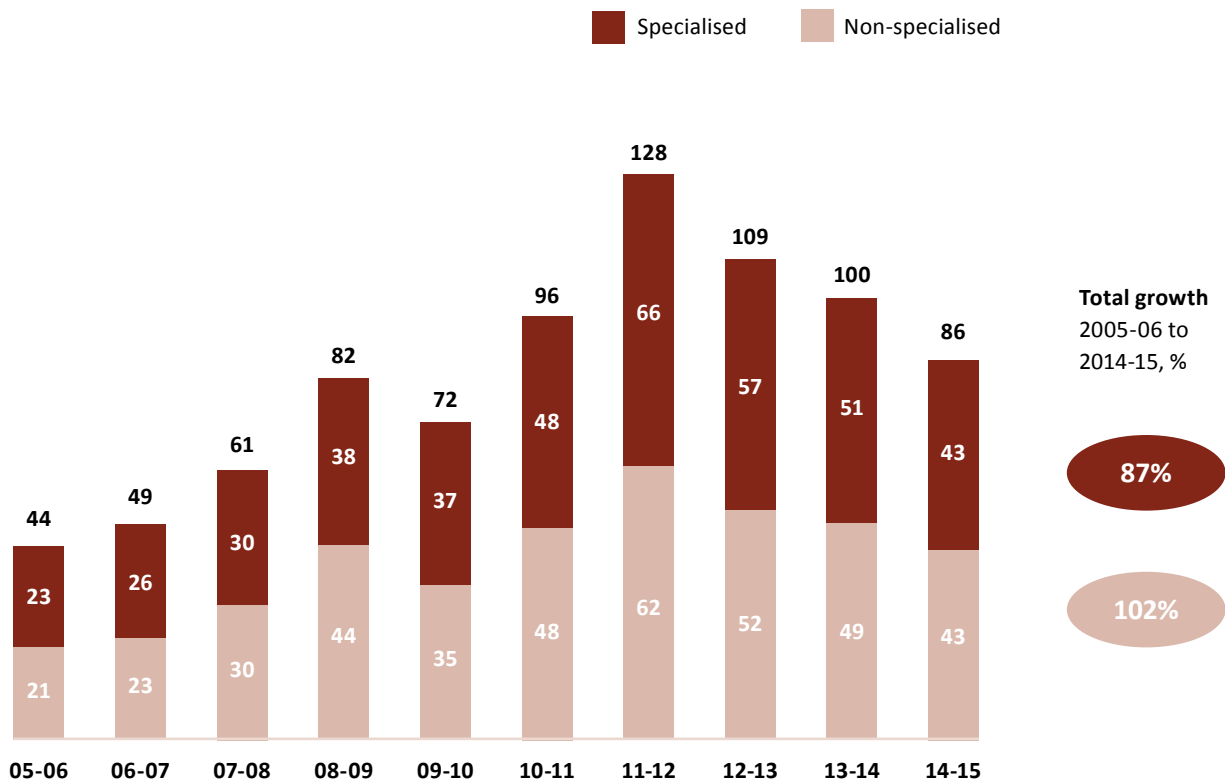
³ ABS, Lateral Economics, Austmine, Deloitte, METS Ignited, AlphaBeta

The METS sector is made-up of both specialised firms and firms from other sectors. The GVA of the specialised portion of the METS sector is estimated to be \$43.3 billion. The specialised portion of the METS industry is made up of firms which provide services such as mine construction, geological survey services, and the manufacturing of mine-specific equipment. These are services specialised to support mining. The remaining portion

of the METS industry includes the full range of services provided in the mining supply chain, such as financial services, travel and accommodation. The largest segments of METS activity are construction (\$8.1bn GVA), professional and technical services (\$8.0bn), and manufacturing of technical equipment (\$6.9bn).

Exhibit 3: The GVA of the METS sector has grown substantially over the last decade

The Australian METS sector, Gross Value Added, 2005-06 to 2014-15, \$ billions, current prices



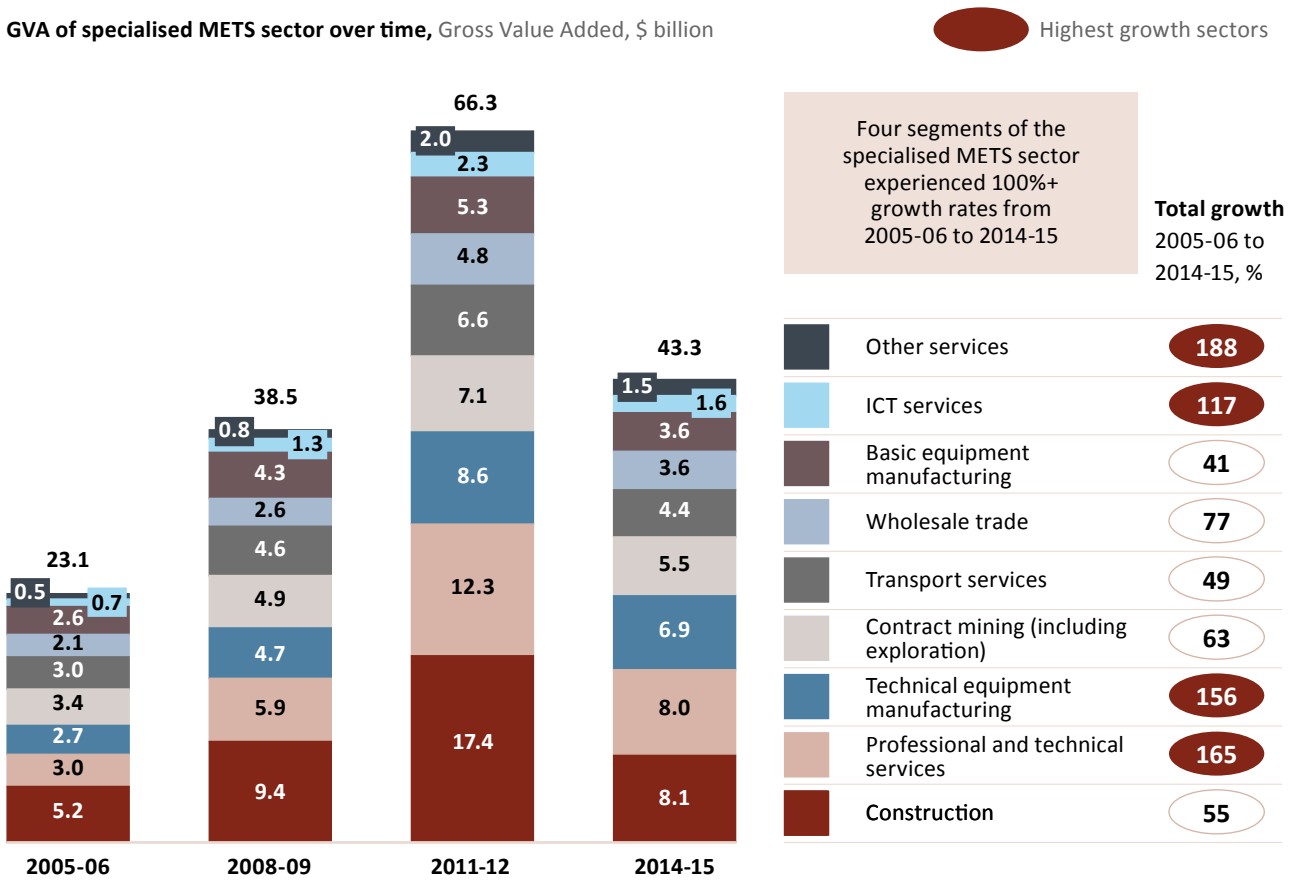
Source: ABS; AlphaBeta analysis

Some specialised sub-industries within the METS sector have witnessed particularly impressive growth (see Exhibit 3). Within the specialised METS Sector there are sub-segments, such as professional and technical services, ICT and technical

equipment and services, with growth rates of over 100 or 200 per cent. These development segments have increased GVA by some \$11.1b and added an additional 94,000 jobs to the economy (see Exhibit 4).

Exhibit 4: Highest growth segments over the last decade have been professional and technical services and equipment, and ICT and other services

GVA of specialised METS sector over time, Gross Value Added, \$ billion



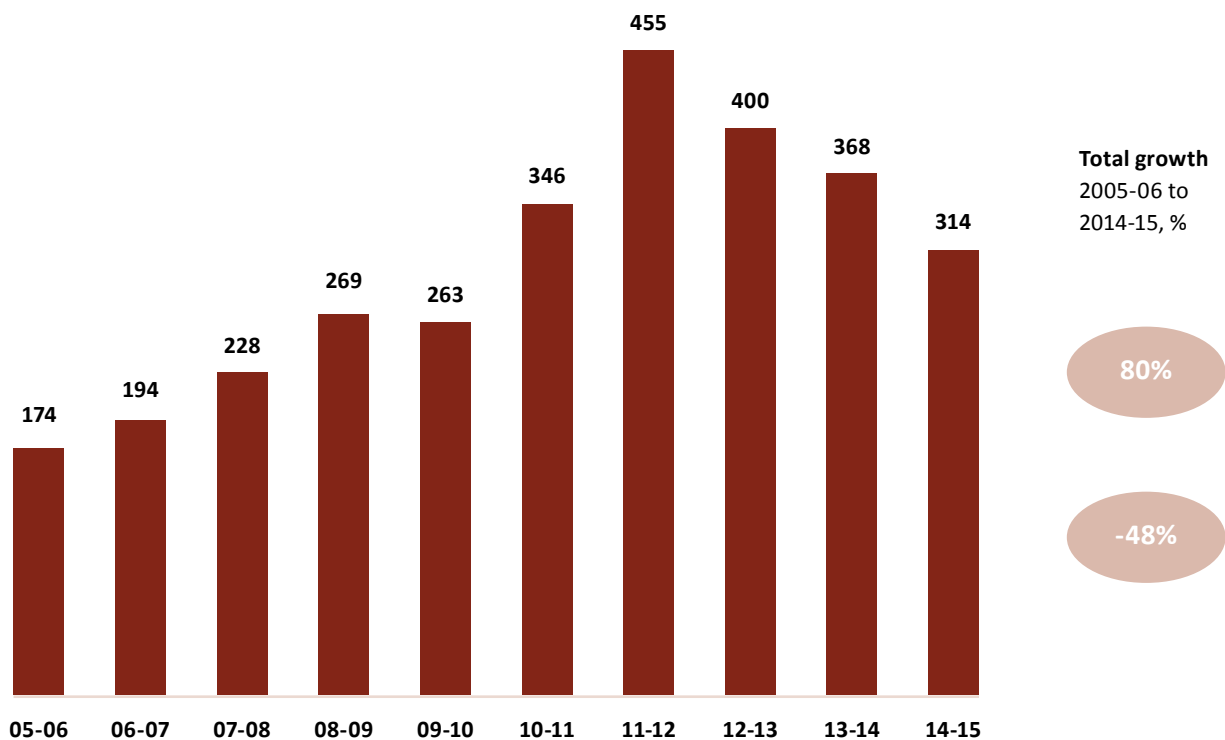
Source: ABS; Lateral Economics; Austmine; MCA; Deloitte; AlphaBeta analysis

The METS sector contributes jobs and innovation to the Australian economy

It is estimated that the METS sector contributed to 503,000 jobs in 2014-15 (Exhibit 5). The specialised portion of the METS industry accounted for 314,000 of these jobs, representing a growth of 80 per cent since 2005-06. Jobs in the specialised METS sector have a higher wage than the average economy-wide wage. In some segments, such as technical equipment manufacturing and professional services, it is substantially higher.

Exhibit 5: The jobs contribution of the specialised METS sector has grown substantially over the last decade

The Australian METS sector, Employment, 2005-06 to 2014-15, '000 Jobs



Note: Employment levels are calculated using employment-output ratios estimated by the ABS, which can be quite volatile
Source: ABS; Team analysis

METS firms are a major driver of innovation for the mining sector and broader economy. METS companies accounted for 75 per cent of patents filed in the mining sector between 1994 and 2011. The share of firms in METS segments that introduced new goods or services in 2014-15 is significantly higher (at 24 per cent) than in other economic segments, such as manufacturing (11 per cent) and services (13 per cent).

This large and growing industry is supported by a large national ecosystem of researchers and commercial partners. In addition, government-supported research programmes such as the world-leading CSIRO, Australian Research Council and the Cooperative Research Centre (CRC) programme work to

promote innovation and are represented by CRC ORE, DET CRC and the new emerging Minex CRC. The contribution of the METS sector to innovation is recognised by the private and public sector. A broad survey of mining CEOs recognised METS firms as one of the “key sources of change and improvement”.⁴ This is also recognised by policy makers. The Office of Chief Economist at the Department of Industry has found that “Continued investment in the mining equipment, technology and services (METS) sector will play a crucial role in advancing industry development in a rapidly changing world.”⁵

⁴ CSIRO, *Unlocking Australia’s Resource Potential: The role of the METS sector in driving and unlocking innovation*

⁵ Department of Industry, Innovation and Science, (2018) *Resources and Energy Quarterly March 2018*

Update to challenges facing the sector

(Chapter 5)

Many of the challenges for the sector identified in the 2016 METS Ignited SCP have materialised. Over the last two years, global competition has grown; the majority of commodity prices remain relatively low; a comparatively high exchange rate continues; and energy costs continue to increase. The mining industry has also faced higher pre-production, mining and extraction costs due to lower grades, higher strip ratios, deeper deposits and higher waste removal costs. Whilst these challenges are all relevant to Australia, outside of exchange rate these reflect the challenges of the mining industry the world over.

Collaboration

While the METS industry and the research sector supporting it have strong inherent capabilities, Australian METS firms must overcome low rates of collaboration to maximise their innovation performance. In its first SCP, METS Ignited recognised industry concerns that insufficient rates of collaboration were hampering innovation. Since then, it has undertaken a detailed analysis of firm performance data to show the extent of this obstacle. The share of METS firms collaborating for innovation purposes is low and varies by industry segment. In the construction and transport segments, just 3 per cent of surveyed firms have collaborated within the past year for innovation purposes. Basic and technical equipment manufacturing segments have the highest rates of collaboration, but even this is limited to 11.5 per cent and 9 per cent of firms respectively.⁶

Undertaking innovation is in the economic interest of METS firms, as well as the nation. National economic data reveals that 40 per cent or more of firms indicate increased revenue as a result of introducing innovative activity.⁷ This is consistent with global studies which indicate that profits are shifting towards firms with more intellectual property and innovative assets. This remains true for firms which operate in industries with large capital requirements. However, while the case for innovation is growing business expenditure on research and development (BERD) is decreasing precipitously. Mining and manufacturing industries, which are a significant portion of

METS firms, saw declines in BERD of 34 per cent and 19 per cent respectively between 2013-14 and 2015-16.⁸

These low collaboration rates may reflect Australian METS firms' geographic fragmentation. It is evident across the world that geographic clusters of certain industries can help deliver increased value.⁹ In Australia, METS firms have not historically developed a comparable geographic cluster – meaning they are less likely to benefit from the spill over impacts of each other's innovation, success in attracting investment, and build-up of a skilled workforce.

Skilling workers

A major barrier to ensuring the transition occurs is the sheer volume of the change required. The mining and METS sectors are likely to see a shortage in important skills without continued development. The number of people working as trainers in Information and Communications Technology (ICT) within the mining industry grew from 1,200 in 2004 to 11,600 in 2014.¹⁰ This 860 per cent growth over a decade is representative of broader shifts in the economy towards digital and service skills. Mining industry representatives continue to observe the potential for a skills shortage. As mining processes and technologies advance rapidly, vocational and tertiary education systems will not necessarily provide the up-to-date training that cutting edge innovation requires. Steven Hall, the Executive Director of Mining Education Australia considers that "Australia is likely to have a substantial skills shortage in the future".¹¹

It will be imperative for the competitiveness of the METS sector and for national employment outcomes that lower skill workers are effectively transitioned into these new roles. The introduction of new technologies in mining will create new markets and jobs. However, as other industries and economic transitions have shown in Australian, if lower skilled workers are not effectively upskilled or transitioned, there may be job losses and a less competitive industry. Effective training for workers, and a competitive industry which creates new markets and sources of value, are essential to make such transitions as smooth as possible for workers.

6 AlphaBeta analysis for METS Ignited (2018)

7 ABS 8158.0, 2014/15

8 ABS 8104.0.

9 SOURCE: Brookings study on innovation districts: <https://www.brookings.edu/opinions/the-rise-of-urban-innovation-districts/>

10 ABS Labour Force survey, 6202.0.

11 *Mind the gap: Training mining workers for a digital future* (27 February 2018)

Undertaking innovation is in the economic interest of METS firms, as well as the nation.

Overcoming challenges

The SCP called for a significant change in interactions in the METS ecosystem, and in the depth and strength of relationships between mining companies, METS companies and researchers. The key actions, which remain relevant and critical, to overcoming sector challenges, are:

- **Getting METS, mining and research industries collaborating more effectively with each other, and earlier in the innovation process, to develop tomorrow's solutions.** Structured collaboration, via collaboration platforms, is improving but can be accelerated and deepened.
- **Encouraging METS companies, and specifically SMEs, to cluster together.** This is critical to achieve scale, to encourage collaboration, to accelerate technical change and to optimise value chain opportunities.
- **Helping METS companies align their focus to the strategies and roadmaps of mining companies.** The opportunities for Miners and METS around digitisation of mining will best be achieved through the aggregation of demand, preferably across sectors, which will ultimately fuel innovation. The Expande Chile model demonstrates how aggregation of demand coupled with practical innovation pathways can effectively accelerate the commercialisation of innovation.
- **Giving METS companies access to Living Labs** where they can prove up and refine their innovations and to establish the ROI for their products and services.
- **Ensuring active engagement of the customer in the innovation process** from ideation, through design, prototyping and testing.
- **Overcoming the challenges that SMEs face in finding research partners and financing collaborations with universities.** The introduction of CRC-P programs are a welcome enhancement for research funding.
- **Growing Australia's comparatively small capital market participation and increasing the market's level of**

investment in the METS sector. This remains critical, to both ensure that capital markets understand the emerging opportunities in the METS sector, and to enhance the capability of METS SMEs and start-ups to attract capital.

Taking action to overcome these challenges remains a priority for the sector.



Update to The Opportunity for the Sector (Chapter 6)

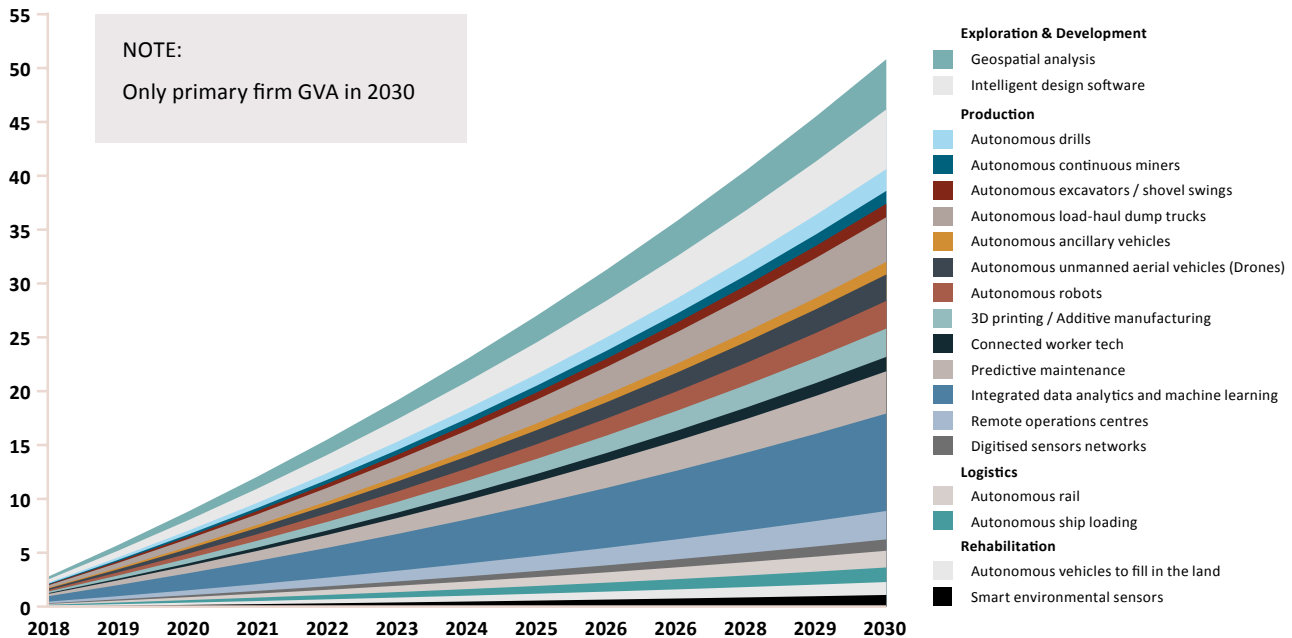
Australia remains well-placed to play a dominant role in the mining industry of the future. Innovation in business models, technologies, behaviours and relationships; upskilling the METS workforce; and growing exports are critical to cementing this role as the face of mining in 2026 will be significantly different to 2016.

Driving productivity through innovation

New research undertaken since the SCP confirms Australian METS firms have a significant opportunity to help mining firms apply new technologies to their mining processes, and improve their productivity. Currently, mining productivity is falling around the world and by some estimates is now as much as 28 per cent below its global peak¹² and as much as 43 per cent below the highest levels achieved in Australia.¹³ Research commissioned by METS Ignited has found Australian METS firms can help deliver a \$52 billion uplift in value added from the mining industry by 2030 by providing products and services that enhance productivity (Exhibit 6).

Exhibit 6: METS firms can help deliver a \$52 billion productivity enhancement to mining firms through automation and robotics technologies

Automation & Robotics impact on total mining GVA, estimated additional value uplift in mining, \$bn 2015



Source: interviews, AlphaBeta analysis.

Autonomous truck fleets have demonstrated reduction in fuel use of 15 per cent and productivity improvements of up to 20 per cent.¹⁴ These technologies are already being embraced by mining firms. As part of its Mine of the Future programme, Rio Tinto has been running autonomous vehicles in the Pilbara since 2008;¹⁵ for scale, Google's self-driving cars have so far logged just over 8 million kilometres.¹⁶ Other technologies include geospatial analysis and intelligent design software in the exploration and development phase, additive manufacturing and predictive maintenance sensors in the production phase, and autonomous rail and environmental sensors in the logistics and rehabilitation phases.

These technological advances will be required for the Australian industry to keep pace with foreign competitors and to avoid continuing declines in mining productivity. In Sweden's Kristineberg mine, the car manufacturer Volvo has deployed self-driving trucks to operate inside of mine passages to transport equipment in and resources or waste out.¹⁷ The Japanese firm Komatsu has embarked on facilitating a Smart Construction project that uses automated drones and software from a San Francisco based start-up Skycatch. The drones are launched to fly a pre-programmed route over a mining area, take photos, and feed the images to a software program that creates a map of the site to centimetre-level detail.¹⁸ In many cases similar innovations are also progressing in Australia and many other parts of the world.

To realise these economic and productivity benefits, METS firms need to innovate and commercialise new products and services at scale. The sector has advantages it can draw upon, such as its existing strong contribution to patents and global mining software development. Australian METS firms can also access world-leading research excellence located in local universities and publicly-funded research institutions in fields ranging from Physical Earth and Chemical sciences, such as condensed matter physics, inorganic chemistry and Geology, and data analytics, optimisation and robotics.

Grow exports and create new sources of value

As the SCP acknowledged, Australian METS companies are already highly active in exporting. An Austmine survey found that 66 per cent of those METS companies surveyed are exporting, and 25 per cent of total annual revenue comes from

200 international jurisdictions.¹⁹ Currently, export intensity varies across METS industry segments. New analysis suggests exports from specialised METS segments generated approximately \$12bn in revenue in 2014-15.²⁰

This analysis confirms the importance of the SCP's focus on sector-level actions that can help METS firms expand their exports. This includes helping firms cater to growing markets in new areas, such as rising demand for lithium required for batteries, and building on Australia's emerging strengths in Industry 4.0 METS technologies and services. It also supports the push to build greater recognition of the "METS" industry and brand, as separate from manufacturing, services or other firms.

Creating and securing jobs

Strengthening the skilled METS workforce will ensure the METS industry continues to provide jobs that pay well and are productive. Currently, most METS industry segments have workforces with higher average rate of productivity than the national economy.²¹ The average wage in METS industry segments are all higher than the national average wage. However, the skills available to the METS workforce must expand to continue delivering innovation and keep pace with global competition. Mining systems installed in the Pilbara region generate in excess of 2.4 terabytes of digital data every minute. This data must be captured, stored, analysed and used strategically to improve operations. It requires the maintenance of mobile and fixed sensors across rail, ports, power stations and water systems, and advanced data-analysis and statistical modelling capability. This changing skill imperative is evident across the economy. In manufacturing, the industry has recognised that its workforce is shifting in composition from low-skill factory workers to higher skilled workers, meaning not only more training, but training in different areas. Creating new, high-value jobs, with clear pathways from training to industry, and upskilling existing workers is critical for Australian METS to maintain a competitive advantage.

14 Rio Tinto preparing for the Mine of the Future with automation (26 February 2018) <https://zd.net/2K2kvap>; Rio Tinto to expand autonomous fleet as part of \$5 billion productivity drive (18 December 2017) <https://bit.ly/2AiWoV8>

15 Future Perfect, Mining Decisions, (accessed November 2018), available at: <https://www.miningdecisions.com/special-reports/future-perfect/>

16 Rio Tinto gets green light for autonomous rail operation (18 May 2018) <https://zd.net/2vhyq6T>; Turning self-driving cars from science fiction into reality with the help of AI (9 May 2018), Waymo blog update <https://bit.ly/2x9MfIT>

17 Volvo tests self-driving truck at Kristineberg mine in Sweden (7 September 2016) <https://bit.ly/2AmV4AK>

18 Komatsu takes aerial view of site surveying (15 September 2017), <https://bit.ly/2LunrCh>

19 Austmine (2015), *National METS Survey*

20 AlphaBeta analysis.

21 AlphaBeta analysis.

Update to METS Sector Competitiveness Plan

(Chapter 7)





Ambition for the METS sector in Australia

The SCP set the ambition that the Australian METS sector would develop “an aligned, efficient and agile industry ecosystem with a high degree of collaboration, global leadership in innovation, and a growing share of the global market.” The SCP defined five interdependent programs of

work to achieve this ambition. Each program of work identified an overarching challenge facing the METS sector, and a vision and set of specific aspirations and initiatives to address it (see Exhibit 7). As the industry growth centre, METS Ignited was tasked with coordinating delivery of the five programs of work. This section provides an update on the progress of METS Ignited and the broader sector in delivering each program of work.

Exhibit 7: Progress in realising the SCP’s vision

Five programs of work from the METS SCP

Programs of work	The Vision
 Aligned Strategy	Working together the METS and mining sectors are better positioned to anticipate trends, to identify opportunities and to de-risk solutions, radically improving productivity, social and environmental outcomes and the growth and competitiveness of both sectors.
 Global Brand	An umbrella positioning that has strong resonance domestically and globally and connotes high quality, knowledge intensive solutions; sets standards and expectations and attracts a price premium.
 Internationally Competitive	Australian METS cluster together to compete effectively in the global supply chain; their growth is enabled by a competitive and supportive capital market.
 Collaborative & Innovative	Partnering from the ideation stage; working together to develop and de-risk solutions; live site testing has resulted in a reputation for quality solutions and speed to market.
 Skilled for 2026	Australian METS have, or can access, the full range of skills required to realise their entrepreneurial ambitions. The industry is continually renewing itself.

Source: METS SCP

Program One: Aligned Strategy

The Challenge

There is potential for greater collaboration between METS, mining companies and researchers. Currently their needs are not always aligned and solutions are not always in sync; innovations are not collaboratively pursued, resulting in implementation risk, low rates of commercialisation and sub-optimal benefit flows.

The Vision

Working together, the METS and mining sectors are better positioned to anticipate trends, to identify opportunities and to de-risk solutions, radically improving productivity, social and environmental outcomes and the growth and competitiveness of both sectors.

The release of the SCP was a critical first step in defining a shared vision for the METS sector. Working collectively to create it also helped build stronger relationships and collaboration between people and organisations in the METS ecosystem.

However, taking action to develop the sector also requires:

- clarity on the current composition and performance of the METS sector
- identification with the METS sector by the players in the ecosystem
- common technology roadmaps to align efforts in the sector.

These actions have been challenging historically because METS has not traditionally been defined as a sector (unlike, for example, manufacturing). This means understanding of the sector is limited as little data is collected on the sector's size, activity and performance. Firms also do not have a tradition of identifying as belonging to the METS sector. Collaboration between different players in the ecosystem has been low.

Addressing these gaps has been a priority for METS Ignited since the release of the SCP. To fill knowledge gaps about the industry, METS Ignited commissioned research into the size and value of the METS sector in Australia and the current state

of innovation. A second priority since the SCP's release has been building strategic relationships across the sector to strengthen collaboration throughout the ecosystem and to minimise duplication of effort. Finally, the sector, including METS Ignited, has collaborated with the CSIRO, South Australian and Queensland Governments to produce technology roadmaps for the METS sector. METS Ignited has also led work to formalise collaboration agreements between METS Ignited, other peak bodies and research institutions.

Looking forward, the priority for METS Ignited and the sector is to increase collaboration across the ecosystem in areas that will increase Australia's competitive advantage. This includes collaborating around a global brand, developing industry clusters and identifying and communicating industry knowledge gaps.



Aspiration 1

Bringing the industry together

Australia is recognised for its achievement in developing an integrated METS, mining and research ecosystem.

Since the SCP's release, organisations across the METS ecosystem have enhanced their collaborative relationships locally and internationally. METS Ignited has worked closely with CSIRO, Austmine, Mineral Council of Australia (MCA), AusIMM, Austrade, Resource Industry Network (RIN), Resources and Engineering Skills Alliance, South Australia (RESA), Data 61, Export Finance and Insurance Corporation (EFIC), Export Council, Queensland University of Technology (QUT), VCI Capital Management (VCI), Minerals Research Institute of Western Australia (MRIWA), Newcastle Institute for Energy & Resources (NIER), Hunternet, Australian Academy of Technology and Engineering (ATSE), Australian Council of Learned Academies (ACOLA), Cooperative Research Centre-Optimising Resource Extraction (CRC ORE), Mining3, Australian Mineral Industry Research Association (AMIRA International), and many others to build closer, collaborative working relationships and to launch joint projects.

Internationally, METS Ignited has established close working relationships with Expande, Alta Ley, Fundacion Chile and Antofagasta Cluster in Chile, and is exploring collaboration opportunities with Canada Mining Innovation Council (CMIC), Centre for Excellence in Mining Innovation, Canada (CEMI), Northern Centre for Advanced Technology, Canada (NORCAT) and Mining Suppliers trade Association, Canada (MSTA).

Aspiration 2

Sharing research & data

The Australian METS industry has recourse to a rich bank of data and research about opportunities and trends, domestically and globally.

New research into the METS sector has helped create a clearer picture of the sector's composition, performance and future opportunities. Working closely with the Office of the Chief Economist in the Department of Industry, METS Ignited commissioned an economic study into the size and value of the METS sector in Australia. The research found Australian businesses supplying the mining industry generate \$86.2 billion GVA to the national economy, and support jobs for 503,000 people. The work validated the choice of METS as a priority growth sector, finding that the Australian METS sector's economic contribution has also almost doubled in size in the decade to 2015. The Minerals Council of Australia and Austmine have also published sector research.

METS Ignited has also created a database with information on METS trends globally, including data on emerging Mining Roadmaps from across the major mining jurisdictions. METS Ignited will continue to maintain the database with information on opportunities and trends, domestically and globally.

Aspiration 3

A shared vision

The "future of mining" is agreed and well understood and is the strategic basis for planning for both METS and miners.

To increase awareness of opportunities related to the future of mining, METS Ignited commissioned the *State of Play Biennial Mining Survey 2017 Report*. This repeated a survey first commissioned in 2015. This is the world's largest mining industry survey, which gathers responses from 800 mining executives globally. The results will be used to help understand the performance of Australia's METS industry and to inform future versions of the SCP.

Aspiration 4

Planning the future, together

Technical roadmaps have been developed and align with the "future of mining". METS, mining companies and researchers understand the benefit of co-designing solutions. They recognise the need to work in partnership and to ensure that solutions are tailored to the miners' specific needs. To achieve this there needs to be a shared understanding of the strategic plans and technical roadmaps of the mining companies, alignment of research roadmaps and priorities and improved access to mining personnel and decision makers.

Since the SCP's release, the broader METS sector, including METS Ignited, has collaborated to produce technology roadmaps defining the future vision for innovation in the sector. This includes working with the CSIRO to produce a METS Industry Roadmap, the Queensland Government's METS Roadmaps, and South Australia's METS Roadmap.

The CSIRO Industry Roadmap reviewed global mining megatrends (see Exhibit 8, opposite page) and identified five opportunities where Australian METS companies can be internationally competitive. The Roadmap outlined how these opportunities could be supported by science and technology investments, and investments in the management skills, culture, processes and business models required to unlock opportunities.

Aspiration 5
Aligning Academics & Industry

Australian research is strongly aligned to the agreed Industry Knowledge Priorities.

The SCP established Industry Knowledge Priorities (IKP) based on extensive research and consultation. The IKPs provide

broad insight into the future technical needs of the mining and METS sectors. Industry engagement helps determine commercial priority. They inform the science and research community of industry needs and commercialisation opportunities. A recent review found that the themes expressed in the IKPs remain relevant to the industry, but noted the heightened emphasis on industry participation as part of the revised guidelines for government funded research.

Exhibit 8: Six global mining megatrends are shaping the METS sector

RETHINKING OUR RESERVES

Rates of discovery for high-quality and accessible ores are declining and not keeping up with depletion. Solutions that help exploration under cover, extend the life of a mine and optimise recovery, combined with social expectations for recycling, re-use and urban (or above ground) mining are all playing a role in changing what is deemed economic.

THE INOVATION IMPERATIVE

A drop in commodity prices, along with rising costs, declining ore grades and concerns about decreasing productivity are compelling the mining industry to focus on operational costs. The mining industry requires creative and innovative solutions to become more productive, sustainable and achieve financial growth.

THE KNOWLEDGE ECONOMY

As emerging economies continue to develop their mining sectors, support in developing applicable skills, services and technologies will be required for efficient and sustainable exploitation of mineral reserves. In advanced economies, increased adoption of specialised digital technologies are resulting in greater collaboration, new business models and fierce competition for talent.

PLUGGED IN AN SWITCHED ON

Digital technologies, data analytics and automation along with greater mobility and increasing connectivity are creating exciting opportunities for the mining industry. These connected technologies are improving safety and environmental outcomes, increasing productivity and driving disruptions across the mining value chain and life cycle.

NEW SUPPLY, NEW DEMAND

Increasing urbanisation and rapid development of emerging economies will continue to spur demand for mineral resources, which will be supplied from developing nations and new geographic domains through technology advancements. Rapid adoption of new consumer technologies is also changing demand for high value, low volume metals and minerals.

THE ERA OF ACCOUNTABILITY

Mining companies will move forward as good corporate citizens, where accountability and environmental success exceeds expectations, strengthening community engagement and support for existing projects into the future.

Source: CSIRO

Program Two: Global Brand

The Challenge

Within Australia, awareness of the METS sector, including amongst participants, is still developing. Globally, the Australian METS sector lacks a collective brand promise and positioning, and a proposition that differentiates it from low-cost competitors.



The Vision

An Australian METS brand and value proposition which enjoys global recognition, is highly sought and recognised for delivering exceptional value whilst encapsulating safety and sustainability as key pillars. A brand that is supported from cradle to grave, by a network of events that showcase Australian METS capabilities. Domestically the sector's brand is cherished for its contribution to Australian society and for the sustainable solutions it represents; the brand stands for innovation and the application of global, leading edge technology to complex challenges; it is a magnet for attracting new generations of talent to the METS, mining and PFRO sectors.

Cementing the Australian METS sector's global reputation for quality and competitiveness is a key goal for METS Ignited and the sector more broadly. Since the SCP's launch, the METS sector has held and participated in major global industry conferences. This is an efficient way to create export opportunities for Australian firms and increase awareness about what Australian METS companies can offer.

This in turn is increasing the effectiveness of the relationship between METS companies, miners, and researchers as a shared common vision is starting to emerge.



Global Brand

Aspiration 1

Creating a strong Australian identity in the global market

Globally the Australian METS brand is recognised and respected as a hallmark of innovation and quality products and services.

The SCP recognised the importance of a globally recognised, Australian METS sector brand to grow exports and increase participation by Australian METS firms within global supply chains. Since the SCP's release, METS Ignited has prioritised working with the METS industry to create a global brand that extends Australia's reputation for innovation, value and environmentally sustainable solutions. Aligning METS activity across Australian government programs and peak bodies such as Austrade, the Entrepreneurs Program and industry peak bodies such as Austmine, is helping to create a clearer, more unified METS offering to the world. The next priority is to fine-tune the brand attributes and narratives synonymous with the brand.

Aspiration 2

Driving brand awareness

Domestically the sector is known for the effectiveness of the relationships between METS, miners and researchers and for the competitiveness and innovation that this delivers.

The METS sector is steadily building the reputation of its innovation ecosystem. METS Ignited's suite of innovation and funding programs, such as masterclasses, scale-up accelerators, collaborative project funds and METS centered hackathons, have increased the level and visibility of innovation activity in the sector. Recent policy changes to research funding programs, such as the CRC and CRC-P, have also incentivised greater industry engagement. In the next twelve months, METS Ignited will prioritise working closely with miners and METS companies to aggregate demand and increase commercialisation by METS companies.

Aspiration 3

Developing a major Australian networking event for the METS and mining sector

The sector's brand, its opportunities and the emerging research is consistently promoted through an international forum such as IMARC.

The SCP recognised Australia would benefit from a national forum positioning the mining and METS sectors as global leaders, particularly in the Asian region. The industry has since worked to turn Australia's International Mining and Resources Conference (IMARC) into a global forum.

Since its inception in 2014, IMARC has doubled attendance in four years, and more than doubled the number of countries represented. METS Ignited has worked with IMARC to expand opportunities for METS and mining firms to collaborate and share information by creating METS Monday, a pre-conference series of METS-centric forums and workshop. Collaboration between mining and METS companies will be further boosted in 2018 as the International Council of Mining and Metals (ICMM) will hold one of its bi-annual council meetings in Melbourne to coincide with IMARC. This will bring the CEOs of the top 27 mining and metals companies from around the world to Australia, and potentially grow the number of attendees to more than 5000 people from 90 countries.

Program Three: Internationally Competitive

The Challenge

The global supply chain is dominated by large, foreign owned METS players who “own” the T1 mining market. Australian SMEs are challenged by scale and struggle to access cost competitive capital. They lack the specialist skills required to negotiate new markets and relationships easily.



The Vision

Successful participation in the global supply chain is best ensured through partnering – either partnering with large mining companies to meet their global needs; partnering with large global METS companies to provide niche or specialist services; or clustering with other Australian METS companies to collectively meet demand along the value chain. But, scale is critical and to achieve this, so is access to capital at competitive rates.

Facing a renewed set of global challenges, the future competitiveness of the METS sector in Australia depends upon the sector’s ability to generate high levels of skills, collaboration and capability.

Therefore, since the SCP’s release METS Ignited has focused on encouraging METS companies to form and participate in effective geographic and/or technical industry clusters. Successful industry clusters generate more competitive and

profitable ways of doing business compared to working alone, and higher than average economic and jobs growth.

Equally important is showcasing the Australian METS industry’s capabilities and successes, identifying and profiling global leading business practices, and shaping global interoperability standards. These have also been focus areas for METS Ignited and the broader sector since the release of the SCP.



Internationally Competitive

Aspiration 1

Creating clusters for success

METS clusters are well developed and are fundamental to global supply chain participation.

Since the launch of the SCP, the METS sector has made a significant effort to accelerate industry clusters. METS Ignited and the Queensland Government have launched a pilot initiative in the Bowen Basin to encourage clustering. Designed by world clustering authority Ifor Ffowcs-Williams, the program brings METS companies together with complementary expertise to solve mining challenges collaboratively. METS Ignited, through the METS Ignited Collaborative Fund, is providing \$500,000 in matched funding to seed projects in the region. The Program supports collaborative commercial projects with the potential to deliver increased value to Queensland's mining operations. Projects must be between two or more METS companies and a mining or major METS company and projects must:

- build on a live business opportunity
- have customer demand, involvement and funding
- deliver broad benefits to regional business and education communities (for example, via capability development, social licence, community engagement).

With digital transformation in other sectors providing insights into what might be achieved in Australian mining over the coming decade, METS Ignited is gathering input from a range of national and international sources to plot possible digital journeys for the Australian METS sector. These options are being initially assessed in an economic analysis of how the Australian mining and METS sector could change as a result of the serious adoption of analytics, automation, robotics and general Industry 4.0 capabilities by both the miners and METS companies.

METS Ignited is planning a world-class and internationally competitive cluster of miners, METS and researchers with the technical skills, experience and business capabilities to deliver to Australia export-ready supply chains that will contribute billions of additional dollars and tens of thousands of METS jobs to our national economy. It will also allow our youth to re-discover how a digital journey towards responsible mining can provide Australia with the environmental and social performance that our future generations expect from our resources sector.

In the 2017-18 budget, funding of \$20 million for the *SME Export Hubs* initiative was announced. The initiative will fund groups of businesses (clusters) up to a maximum of \$1.5 million over four years. The guidelines for the initiative were still under development at the time of writing. This initiative further supports the focus and intent of the initial SCP.

Aspiration 2

Accessing global supply chains

SME export participation has been accelerated given their ease of access to the needed knowledge and skills. The Australian METS sector, of all the growth centre sectors, is already highly export focused.

Accessing global supply chains continues to be a key focus area for METS Ignited. In 2018-19, METS Ignited is working closely with Austrade and Austmine to enhance access for Australian METS companies to global supply chains. The Latin America (LATAM) strategy is the first step in this collaboration. It includes the Tech Passport initiative, developed in partnership with Expande (Chile) and Austrade. The Tech Passport Initiative will create an exchange program for two high-potential companies from each country gaining a full immersion into the corresponding markets. Austrade is also establishing a METS launchpad in Latin America, the first sector-centric launchpad.

Aspiration 3

Growing exports

The rate and value of Australian METS exports has accelerated with the deployment of effective marketing and promotional strategies/campaigns.

Since the release of the SCP, Austmine has played an active role promoting the capability and innovation emerging from the Australian METS sector. Their international missions target key opportunity markets and have a strong record of success. Austrade has also played an important role with a range of initiatives that aim to develop close working relationships with key emerging sectors and projects.

Aspiration 4

Encouraging investment

The sector is underpinned by supportive capital markets ensuring the scale needed to participate in global markets.

The SCP highlighted that addressing access to capital, and better preparing SMEs to raise funds, were two key issues that needed addressing. To help build SME capability in raising funds, METS Ignited is launching a Masterclass series on effective capital strategies.

Program Four: Collaborative and Innovative

The Challenge

Despite the high rate of innovation, the sector has a poor track record of commercialisation. Collaboration between sector participants can be improved. Concerns about IP ownership impede the potential for value creation.



The Vision

Success depends on accelerating the rates at which we commercialise the innovative solutions we are known for. Working in isolation undermines our potential. Ensuring true collaboration from the ideation stage between METS companies and METS, mining and PFROs will increase application, reduce risk and enhance speed to market. Working together will ensure solutions are targeted at need and are timely; and will support the global shift to standard and open systems.

Facing a renewed set of global challenges, the future competitiveness of the METS sector in Australia depends upon the sector's ability to innovate and commercialise. Since the release of the SCP, METS Ignited has led work across the sector

to build awareness of best practice approaches to innovation, rollout innovation programs and funding, and provided Australian METS companies with the opportunity to influence global standards.



Collaborative and Innovative

Aspiration 1

Collaborative and innovative

The collaborative culture in the mining/ METS/research sectors is world leading.

To bring the best global insights into collaboration and innovation to the Australian METS sector, Dr Erkki Ormala, Professor of Practice, Innovation Management at Aalto University Business School in Finland, was brought to Australia to run a nationwide lecture series on leading industrial innovation practices. Dr Ormala is the chair of the Horizon 2020 Industrial Innovation Transition review, which has gathered data from over 600 companies in multiple industries to investigate drivers for successful innovation and their contribution to companies' successes. The thought leadership lectures attracted more than 500 people across Brisbane, Sydney, Melbourne, Perth and Adelaide. The events featured a panel of Australia's leading figures in the METS, mining and research sectors, discussing the impact of this emerging information on the Australian METS environment.

To drive collaboration, METS Ignited launched a \$15.6m, four-year initiative to support, encourage and fund sector-wide commercialisation of innovation through collaboration. Tranche I launched five early stage projects; Tranche II was launched through a national roadshow which drew attendances of over 500 METS, miners and researchers together to explore opportunities to collaborate. The roadshow covered Port Hedland, Kalgoorlie, Perth, Karratha, Adelaide, Burnie (Tasmania), and Darwin. Tranche II Funding attracted over 50 projects with projects value exceeding \$100m. Final stage negotiations will see 7-8 projects funded. The program has been highly successful with multiple METS companies coming together to commercialise innovation. Participation by all major mining companies has been highly supportive. A third tranche will roll out in 2018.

Aspiration 2

Establishing frameworks for collaboration

The infrastructure necessary to support and sustain collaboration in the ecosystem is well developed.

Access to real and near real sites to test technologies plays a crucial role in bridging the valley of death between early stage proof of concept and a viable commercial product. Such facilities also enable a reduction of both technical and integration risks, which are barriers to the take-up of innovation. METS Ignited and the Queensland Government are working with AECOM to produce an online database of testing environments in Australia and overseas.

Aspiration 3

Stimulating innovation

The innovation capabilities and the array of innovative ideas in the sector is recognised as gold standard.

The METS sector has launched a number of innovation programs since the release of the SCP. METS Ignited has supported multiple innovative projects through the deployment of collaborative project funds Tranche I and Tranche II. Austmine, through the METS Ignited sponsored Co-labs, is creating pathways to increase collaboration opportunities for METS and miners. The Unearthed METS-centred hackathons are playing a significant role in increasing commercialisation and stimulating innovation, particularly in the digital and data analytics space.

METS Ignited also provided an industry challenge to the participants of the Massachusetts Institute of Technology (MIT) Innovation and Entrepreneurship Bootcamp in Brisbane. The challenge, taken by one of the teams of participants, focused on social license in mining. MIT Bootcamps bring together 60-90 innovators to focus on global challenges of strategic importance.



Collaborative and Innovative

Aspiration 4

Accelerating commercialisation

The rate and quality of Australian innovation is internationally recognised as a benchmark.

The METS sector has prioritised increasing commercialisation since the release of the SCP. This includes the launch of Igniting METS, a highly successful 12-week accelerator program, launched in partnership with KPMG and the Queensland Government. The accelerator is an Australian-first as it is the only late-stage accelerator with a singular focus on METS companies. The initiative was part of a broader \$6 million program between METS Ignited and the Queensland Government to accelerate innovation in the sector. It gave participants access to deep-dive workshops, mentoring and support from industry leaders, entrepreneurs and subject matter experts. Eight METS companies participated, including Artemis Intelligent Robotic Systems, Commit Works, FDP Mining, Mackay Conveyor Equipment, Paradyn Systems, QuickSafety, Vayeron and XDR. Direct results have included contracts for companies in the Middle East.

Aspiration 5

Interoperability & the Internet of Things

Australia is recognised as the leader in developing and leveraging interoperability standards.

Since the release of the SCP, METS Ignited has shaped METS interoperability standards through its work with Global Mining Group (GMG). GMG is a global strategic body that facilitates global mining collaboration on solutions to common industry problems, needs and technology through the development of guidelines and best practices. GMG is a non-profit, funded and supported by all the major mining companies, Original Equipment Manufacturers (OEMs) and METS companies.

METS Ignited is working with GMG on a global mapping of interoperability requirements and activities. This involves METS Ignited running roadshows across Australia, culminating with two final workshops that will capture the inputs from an Australian Mining and METS perspective that will feed into the creation of a global map.

Aspiration 6

Tried & tested

Commercialisation of innovation relevant to the METS/Mining sector is leading practice in terms of time to market, cost of integration and industry take-up.

Much of the innovation that occurs in the METS sector is neither well-documented nor well-celebrated. To change this dynamic, METS Ignited is working with the broader METS industry to establish and promote the most innovative Australian METS companies. This includes developing an annual ranking of company excellence that will celebrate the capabilities and successes of leading firms in the sector.

Program Five: Skilled for 2026

The Challenge

The strong technical orientation of the METS industry is not balanced by the commercial and marketing skills required for effective market penetration and sustained growth. Few are fully equipped to embrace the opportunities of the digital age.



The Vision

Success depends on accelerating the rates at which we commercialise the innovative solutions we are known for. Working in isolation undermines our potential. Ensuring true collaboration from the ideation stage between METS companies and METS, mining and PFROs will increase application, reduce risk and enhance speed to market. Working together will ensure solutions are targeted at need and are timely; and will support the global shift to standard and open systems.

As the mining and METS industries become more technologically advanced, and more globally oriented, the mix of skills required in the industry is changing. Helping the METS sector understand these workforce needs and shifts, and upskill to meet them, has been a key priority since the release

of the SCP. This has been achieved by research to define current and future industry skills requirements and gaps, influencing providers to close gaps, and providing training directly.



Skilled for 2026

Aspiration 1

Identifying skill gaps

METS are actively engaged in further education to keep knowledge and skills relevant given the changing nature of the sector.

The initial SCP identified that METS companies have a strong technical skills orientation and would benefit from increasing the level of commercial and marketing skills in the industry. Therefore, since the SCP's release, METS Ignited supported work undertaken by the Mining Leaders Group and the Minerals Council to deliver the "new Future Minerals Workforce Program" across Australia. The C-suite program, developed and delivered by the Mining Leaders Group, assisted senior managers to better design their organisational and workforce strategies in response to technological advancements, changing societal expectations, globalisation and business model transformation.

Aspiration 2

Education and upskilling

The industry's skill needs are well-defined and strategies are in place to address them.

Since the SCP, METS Ignited identified a need to help METS SMEs prepare for an Industry 4.0 world. METS Ignited partnered with the Australian Government's Entrepreneurs' Program to create a series of Masterclasses targeted at METS companies. The topics covered by the four classes are: digital disruption; effective capital strategies; workforce of the future, and winning more work. The Masterclasses are being delivered through a collaborative partnership, which allows industry to access the information at no cost.

The first Masterclasses were delivered to more than 500 participants across Australia in late 2017 and early 2018. Events were held in Brisbane, Perth, Adelaide, Melbourne, Newcastle, Wollongong, and Burnie.

In 2018, METS Ignited will build on this success by offering a series of targeted workforce training programs to improve sector capability.

Aspiration 3

Demystifying data & digitisation

METS and mining sectors are ahead of the curve on digital disruption and emerging technologies.

The initial SCP recognised that new technologies from data analytics to sensors are profoundly changing the mining industry. However, consultation highlighted that many SMEs lack the knowledge to embrace these emerging opportunities and evolve their business models to optimise them. The Masterclasses, run with the Entrepreneur's Program, were a first step to address this.

Aspiration 4

METS mentors

The METS, mining and research sectors work together to create opportunities and to actively mentor their brightest and best.

METS Ignited supported the national launch of the IMNIS Industry Mentoring Program bringing together science, technology, engineering and mathematics (STEM) researchers with METS industry leaders to help foster a culture of innovation and collaboration.

Together with the other Industry Growth Centres, MTPConnect and NERA, METS Ignited partnered with IMNIS to provide targeted industry mentoring on a national scale. The collaborative partnership has seen the IMNIS program grow from a small pilot into a prestigious mentoring initiative involving more than 400 people. The national expansion of this program is helping PhD students transition into the workforce, supporting METS sector growth, and strengthening Australia's global competitiveness. In 2018, the IMNIS Industry Mentoring Program aims to recruit 600 participants — 300 PhD students, and 300 industry leaders.

The initial SCP also identified the profile of the METS industry as male, Anglo Celtic and ageing. The sustainability of the industry depends on the sector's ability to attract graduates and women to its ranks. The Austmine *Women in STEM: Career Pathway Program*, funded by METS Ignited's collaboration fund, has successfully placed female students in internships in METS companies across Australia. Many of those internships have resulted in jobs.



Aspiration 5

Schooling universities in METS

Engagement between METS and education sector is strong and effective.

The initial SCP identified concerns about whether Australia's academic institutions were evolving curricula in line with changing industry needs. The METS Ignited MOU with the Australian Technology Network (ATN) of Universities is creating greater engagement with the sector and research and education institutions. The ATN brings together five of the most innovative universities in the country: Queensland University of Technology, University of Technology Sydney, RMIT University, University of South Australia and Curtin University.

The ATN hosted a Business Higher Education Round Table (BHERT) dedicated to METS in July 2017. The round table brought together 30 attendees representing leading METS, miners and world-ranked universities in a forum promoting greater dialogue and engagement across industries.

Update to the Regulatory Environment (Chapter 8)

Ensuring the Australian METS sector operates in a competitive regulatory environment is a priority for the Australian Government and for METS Ignited. Regulatory reform in the METS sector is a major opportunity that could generate \$1.75bn in value for the Australian economy.

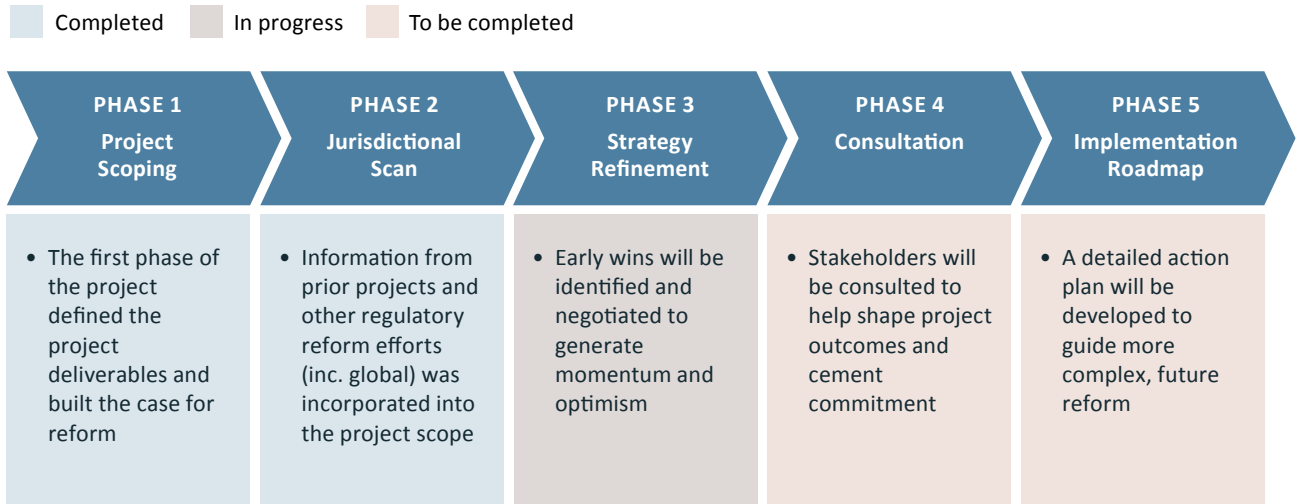
Since the SCP was released, METS Ignited has coordinated the development of a METS sector Regulation Reform Roadmap in partnership with industry and government. The Roadmap describes how the regulatory environment can be improved to support growth, competitiveness, productivity and investment in the METS sector. It identifies “early wins” and longer term

reforms. The Roadmap covers all tiers of government but recognises most of the regulatory impact on the METS sector arises from state, territory and local government regulation.

The METS Roadmap follows the guidelines for regulation reform issued by the Department of Industry, Innovation and Science in 2015, which recommended regulatory reform focuses on short, medium and long-term opportunities to improve the international competitiveness of the METS sector. The work is occurring over five phases (see Exhibit 9). The project is well progressed, with phase three near complete and phases four and five to be completed by Q1 2019.



Exhibit 9: Regulation Roadmap Development



Regulatory reform priorities

The project will identify the top priority regulatory reform issues for the METS sector over the short, medium and long-term. It has currently identified 16 key areas of reform, including:

- Regulatory harmonisation in the Cooper Basin
- Common mine site induction processes in the Bowen Basin
- Collaboration with other growth centres on initiatives such as identifying international trade barriers
- Modernising mercury rehabilitation protocols
- Incorporating Australian-based regulatory frameworks into mining legislation of key trading partners
- Ensuring appropriate protocols exist for the adoption of emerging technologies at mine sites.

From these areas, the project has identified four priorities for immediate action:

1. Linking reform of the regulatory environment affecting the METS sector to an intergovernmental oversight body with strong connections with key decision-makers within State jurisdictions, and preferably a sub-committee of COAG;
2. Incentivising State Governments to undertake regulation reform of the METS sector through access to the National Business Simplification Initiative (NBSI);
3. Working with key government agencies to scope the potential for regulatory harmonisation in the Cooper Basin; and
4. Establishing a pilot project in the Bowen Basin for common mine-site induction processes to reduce compliance costs of METS companies operating in the region.

The project will also help businesses and governments quickly raise and resolve any regulatory issues. This includes assisting companies to explain regulatory issues to government agencies and address them through negotiation. A successful example of this approach is the issue of access to spectrum for underground communications. Small METS firms were frustrated at their inability to gain access to spectrum. As a result of the project’s intercession, the regulatory agency recognised the industry’s concerns and included their issues in the next round of community consultation for bandwidth allocation.

Working with governments

Building constructive relationships with state and territory governments is critical to improving the regulatory environment as most of the regulatory impact on the METS sector arises from state level regulation. The Roadmap addresses this by inviting experienced state government officials from technical regulatory agencies to be seconded into specific elements of the regulation reform project. This has the dual benefit of utilising their expertise in identifying and designing reform opportunities, and of building support for reform with the jurisdictions responsible for the regulation. Without strong state government involvement and ownership of the reform project objectives it is highly unlikely that implementation will occur. Examples of this approach include:

- **Potential harmonisation of regulatory environments in the Cooper Basin.** The Australian Government has identified the Cooper Basin as a key potential resource for the supply of natural gas to eastern seaboard markets. The CSIRO is leading a project to scope the potential size of gas reserves in the area. Once more is known about the basin from a geological perspective, METS companies will need to “hit the ground running” to rapidly liberate gas reserves to relieve energy demand pressures on the East Coast. A common regulatory environment that spans all jurisdictions in the region is critical to bring additional gas capacity to market quickly.
- **National Business Simplification Initiative:** the project has worked closely with the Australian Government on the National Business Simplification Initiative (NBSI). Once approved by the Commonwealth Treasury, the NBSI will provide financial incentives to state governments to compensate them for the costs of pursuing reforms, along with potential losses associated with revenue erosion. The NBSI is pertinent to the METS sector because of the extent of state and territory regulations affecting the sector.

"Building constructive relationships with state and territory governments is critical to improving the regulatory environment as most of the regulatory impact on the METS sector arises from state level regulation"





Australian Government
Department of Industry,
Innovation and Science

Industry
Growth
Centres